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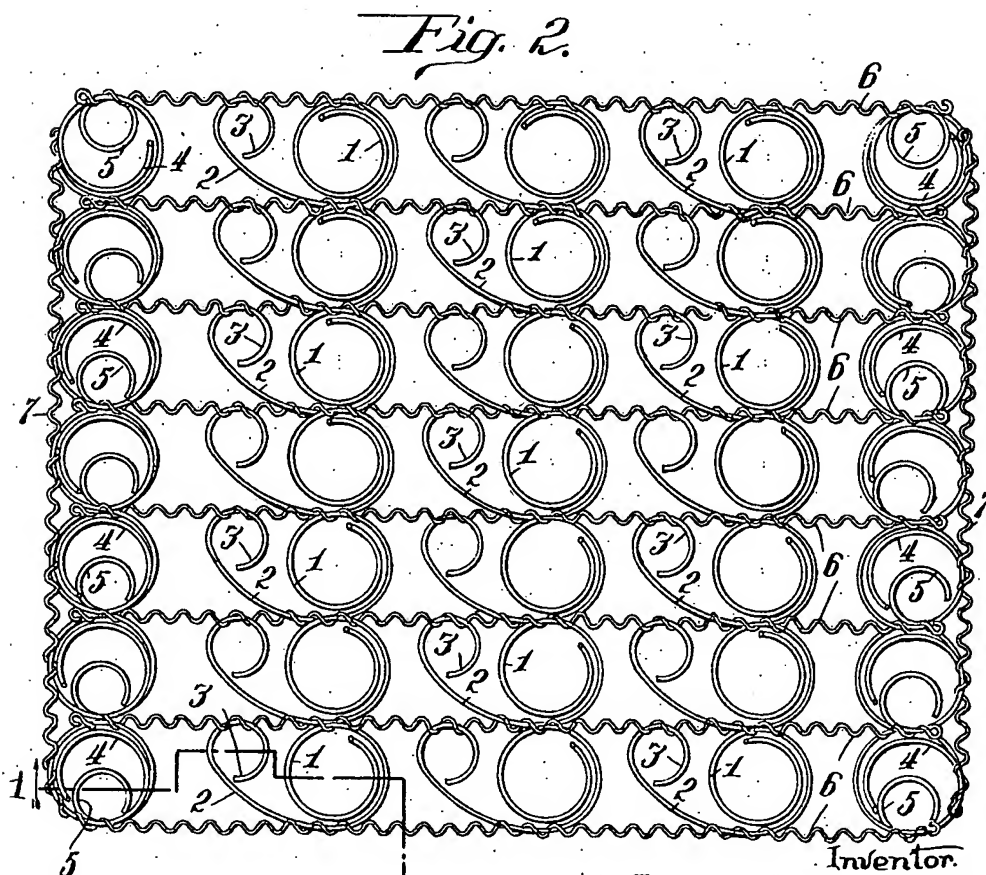
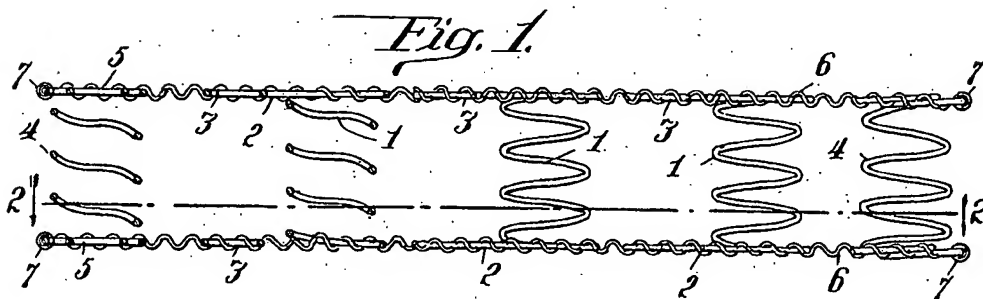
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2,021,528

SPRING ASSEMBLY FOR UPHOLSTERY AND SPRINGS THEREFOR

Filed June 21, 1934

3 Sheets-Sheet 1



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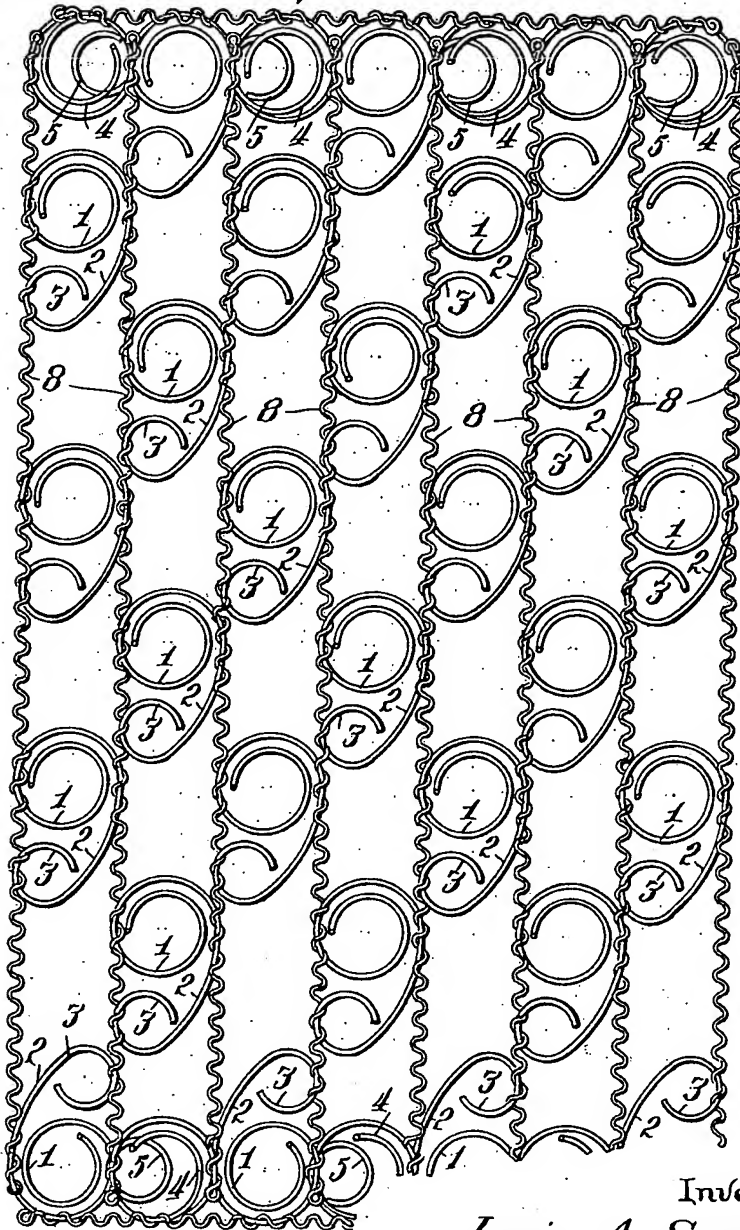
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*Fig. 3.*



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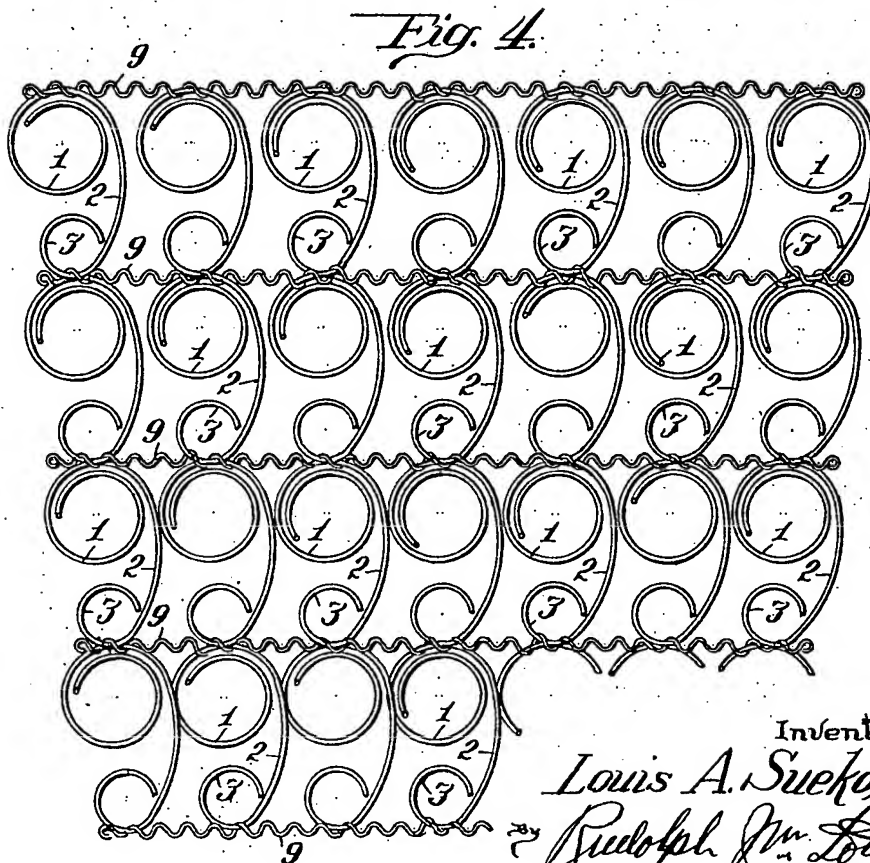
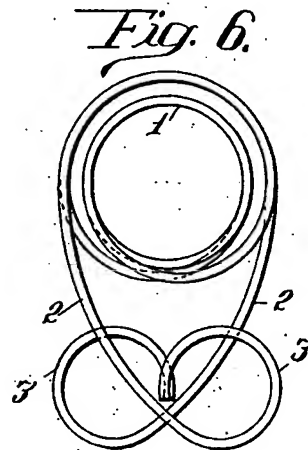
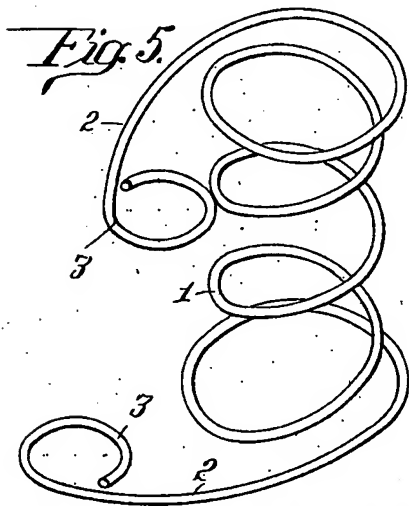
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SPRING ASSEMBLY FOR UPHOLSTERY AND SPRINGS THEREFOR

Filed June 21, 1934

3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,021,528

SPRING ASSEMBLY FOR UPHOLSTERY AND  
SPRINGS THEREFOR

Louis A. Suckoff, Wilmette, Ill.

Application June 21, 1934; Serial No. 731,631

4 Claims. (Cl. 5-269)

The present invention relates to improvements in springs for spring assemblies for upholstery and of the assembly made up of said springs and spring connecting devices.

5 The main object of the invention is to provide an upholstery spring wherein the terminal coils are extended at their extremities laterally beyond the body of the spring and wherein the extremities of said end coils are provided with skeleton terminal formations such as loops 10 which afford a means for engaging the spring at three different points by spring coupling devices in effecting its incorporation into a spring assembly for purposes of holding the same against 15 rotation about its own axis and against displacement relatively to the other springs.

A further object of the invention is to provide springs of the type referred to, wherein the said terminal formations of the end coils of the 20 springs also provide auxiliary supports for the padding which overlies the spring assembly when the same is incorporated into a mattress or cushion.

A further object of the invention is to provide 25 a spring of the type referred to above which is capable of being delivered directly from a conventional coiler without requiring any subsequent operation on the spring to impart to it the desired shape and contour.

30 A further object of the invention is to provide a spring assembly made up of springs of the type hereinabove referred to, wherein the body portions of the component springs are maintained in predetermined spaced relation to each other 35 without presenting unduly large free spaces between contiguous springs into which the aforesaid padding is enabled to sag.

Suitable embodiments of the invention are 40 illustrated in the accompanying drawings wherein:

Fig. 1 is a vertical sectional view on the line 1-1 of Fig. 2 of a spring assembly constructed in accordance with the invention.

45 Fig. 2 is a plan section of the same on the line 2-2 of Fig. 1.

Fig. 3 is a plan section similar to Fig. 2 showing the component springs of the assembly disposed in a different relative arrangement.

50 Fig. 4 is a view similar to Figs. 2 and 3 showing still another relative arrangement of component springs of the assembly.

Fig. 5 is a perspective view of one of the component springs of the assembly.

Fig. 6 is a plan view of the same.

55 Referring first to Figs. 5 and 6, it will be noted that the spring shown therein comprises a body portion (1) of what may be termed the conventional upholstery spring type, the end or terminal coils of said spring being extended in a 60 spiral of increasing radius relative to that of

the normal contour of an end coil of an upholstery spring, to form the extension portions (2) and forming the extremities of said extension portions (2) into substantially circular loops (3) which are disposed laterally of and spaced 5 from the body portion of the spring, the said extension portions (2) and loops (3) being disposed in planes parallel with each other and substantially perpendicular to the longitudinal axis of the body portion (1) of the spring. 10

Springs of the type shown in Figs. 5 and 6 are delivered directly from a conventional spring coiling machine (commonly known as a "coiler" in the art) by the use of certain forming cams and effecting certain adjustments of the coiler 15 so that springs cost no more, substantially, than the conventional upholstery spring, the additional cost being that of the additional wire required to provide the extension portions (2) and loops (3). 20

Preferably, the extension portions (2) and loops (3) are positioned relatively to each other at opposite ends of springs as shown in Fig. 6, but this relative arrangement or position of the loops (3) may be varied as desired without departure from the invention.

Referring now to Figs. 1 and 2, it will be noted that the springs (1) are arranged in spaced relation to each other in parallel rows extending transversely of the assembly and that they are 30 disposed in parallel rows wherein the body portions of the springs are in alignment with each other longitudinally of the assembly, the type of spring shown in Figs. 5 and 6 being interposed between end rows of springs (4), wherein the terminal 35 loop formations (5) of the end coils are disposed within the confines of the body portion of said springs to provide a series of stiffer springs along the front and rear edges of the spring assemblies than are provided in the body of the as- 40 sembly.

The relative arrangement of springs as shown in Fig. 2 constitutes the preferred embodiment of the invention in a spring assembly and it will be noted that in this preferred embodiment, each 45 of the component springs of the type shown in Figs. 5 and 6 is spaced from each companion spring in such a manner as to bring the loop formations (3) substantially midway between the body portions of two contiguous springs so 50 that said loops (3) and the extension portion (2) of the terminal end coils of each spring cooperate with the connecting flexible wire strands (6) to provide supports for padding in what otherwise would constitute open spaces between con- 55 tiguous springs of a row thereof.

The wire strands (6), herein illustrated, consist of helicals which are commonly used in the manufacture of spring assemblies for maintaining springs in spaced relation to each other and 60

to connect the springs with each other. In the instance illustrated in Fig. 2, each helical (6) engages the end coil of the spring and its terminal loop (3) with the exception of the helical (6) shown at the bottom of Fig. 2. All of the helicals except the marginal ones, are parallel with and interposed between marginal helicals (6) at the top and bottom of Fig. 1 and engage the terminal coils of two contiguous springs to connect the springs of one row with the springs of the next adjacent row besides engaging the terminal coil formations (3) of the coupled springs, so that each spring of the assembly of the type shown in Fig. 5 and Fig. 6, is engaged at three distinct and spaced apart points by the helicals and said points of engagement are relatively far apart.

It will be noted that if the upper end coils of the springs (1) of Fig. 2 were shown, the loop formations (3) at the tops of said springs would be disposed in partly overlapping relation to the lower loop formations (3) in the manner illustrated in Fig. 6.

Preferably, the helicals (7) extending transversely of helicals (6) engage the marginal springs (4) for further joining of said springs and also to provide substantially continuous, approximately straight edges along the margins of the assembly.

In Fig. 3, I have illustrated another embodiment of the invention, wherein the springs (1) are disposed in staggered relation to each other throughout the assembly and the same are spaced from each other so that none of the helicals (8) is engaged with more than one thickness of wire of any of the component springs anywhere in the assembly, except at its extreme ends where springs of the type (4), shown in Fig. 2, are alternated with springs (1) along two marginal edges of the spring assembly. In the structure of Fig. 3, each of the springs (1) is engaged by helicals at three spaced apart points.

In Fig. 4, I have shown another embodiment of the invention differing from that shown in Figs 2 and 3, wherein the springs (1) are relatively arranged so that each thereof is engaged by a helical (9) at a point diametrically opposite the point of engagement thereof by another helical in the loop formation (3) of the end coil, and said springs are spaced apart differently in different rows so as to form a seat cushion, for example, which is of greater width along its front than along its rear edge and is provided with side edges extending at an acute angle to the front edge of the spring assembly and an obtuse angle to the rear edge thereof. In the instance illustrated in Fig. 4, the upper row of springs (1) will constitute the front edge row in the completed assembly and the springs shown at the bottom of Fig. 4 will constitute the rear edge row of said springs, the spacing of said springs in the different rows being variable as desired, as will be obvious.

It will also be obvious that the loop formations (3) may be spaced a greater or less distance from the body portion of the spring (1) than that shown in Figs. 5 and 6 and in Figs. 2, 3 and 4.

Spring assemblies constructed in accordance with the present invention can be produced at very low cost and the resulting structure is more efficient per unit of nine or sixteen springs than if the assembly were composed of such a unit of the same area of springs devoid of the extension portions (2) and loop formations (3) shown herein.

The padding referred to hereinabove is not illustrated in the drawings as the same is well known to those skilled in the art.

I claim as my invention:

1. A spring assembly for upholstery comprising a row of upholstery springs each comprising a body portion terminating at one end in an end coil equipped with a terminal loop formation disposed laterally of the body portion of the spring, said springs of each row thereof being spaced from each other and said loop formations thereof disposed to occupy open spaces between contiguous springs, and flexible wire devices bordering the said row of springs, one of said devices engaging the end coil and the loop formation of each of the springs of the row and the other of said devices engaging the end coil of each of the said springs at points diametrically opposite the points of engagement of the said end coils by the other of said devices.

2. A spring assembly comprising a plurality of parallel members constituting spring spacing devices, a plurality of rows of upholstery springs alternated with said devices, each of said devices being engaged with the terminal coils of each of two springs of each row of the latter and the terminal coil of each spring of a row of the latter being engaged at diametrically opposite points by two of said devices whereby said springs maintain said devices in spaced relation to each other, each terminal coil of each of said springs being equipped with an offset portion terminating in a loop formation, the latter being engaged by one of said devices which is also engaged with the terminal coil of the spring, whereby each terminal end portion of each spring of the assembly is engaged at three points spaced from each other by a pair of said devices.

3. A spring assembly comprising a series of parallel rows of upholstery springs spaced from each other, each terminal coil of each of said springs being equipped with an offset portion terminating in a loop formation, a series of parallel members constituting spring-spacing devices alternating with said rows of springs and constituting also coupling devices for coupling the springs of each row with the springs of the next adjacent row, each terminal coil of each of said springs being engaged at diametrically opposed points by two of said devices, and each of the latter, except one, thereof, being engaged also with a loop formation of each of said springs.

4. A spring assembly comprising a plurality of parallel members constituting spring spacing devices, a plurality of rows of upholstery springs alternated with said devices, each of said devices, except one, thereof, being engaged with the terminal coils of each of two springs of each row of the latter and the terminal coil of each spring of a row of the latter being engaged at diametrically opposite points by two of said devices whereby said springs maintain said devices in spaced relation to each other, each terminal coil of each spring of each row thereof, except the two springs at the ends of the row, being equipped with an offset portion terminating in a loop formation spaced from the body of the spring, said loop formation of each of said springs being engaged by one of the devices engaged also with the body portion of the terminal coil of said spring, whereby each terminal end portion of each spring of the assembly is engaged at three points spaced from each other by a pair of said devices.

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